

ASOS MODIFICATION NOTE 47 (for Electronics Technicians)

Engineering Division

W/OSO321:BGM/AJW/WDW

Revision Date: 06/03/1999

SUBJECT : Acquisition Control Unit (ACU) Memory Firmware Version 2.60
Data Collection Package (DCP) Boot Erasable Programmable
Read Only Memory (EPROM) Version 1.90

PURPOSE : Firmware upgrade for the Automated Surface Observing System
(ASOS) Operational Load.

EQUIPMENT : ASOS ACU (AACU)
AFFECTED ASOS DCP (ADCP)

PARTS REQUIRED : ACU EPROM P/N 62828-45002-1
ACU EPROM P/N 62828-45003-1
ACU EPROM P/N 62828-45004-1
ACU EPROM P/N 62828-45005-1
DCP EPROM P/N 62828-45018-1
DCP EPROM P/N 62828-45019-1

MODIFICATION : The above parts will be initial issued by Washington Central
PROCUREMENT Support for all ASOS sites. One set of ACU EPROM
S100-1A2A3-U8D and 2 sets of S100-2A1A2A1U29A, will be
issued for each ACU and DCP respectively.

EFFECTIVITY : All ASOS sites.

SPECIAL TOOLS : IC insertion tool (ASN: 041-T-13)
REQUIRED IC extraction tool (ASN: 041-T-16)
Electrostatic discharge (ESD) straps

SPECIAL : All SYSLOG, OBSLOG, 5 min, SHEF and archive data must be
INSTRUCTIONS downloaded prior to starting this modification. All data must be
sent to the National Climactic Data Center via the Data
Acquisition Program Manager (DAPM).

Engineering Handbook No. 11, Section 3.6, Modification Notes
49 and 50 must be installed in conjunction with this modification.

In the event that this modification is being completed at the same
time as modifications 51 and 52, or 54 and 55, all work should be
completed on the ACU first. Restart the ACU then complete the

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work on the DCP. This will allow the augementer to transmit hourly observations.

Direct Command Mode cannot be accessed at the ACU. The data file downloads referenced to in step 3, on page 4 *must be downloaded via a remote operator interface device (OID)*.

TIME REQUIRED	:	4 hours
EFFECT ON OTHER INSTRUCTIONS	:	EHB-11, Section 3.6, this modification note supersedes Modification Note 38.
AUTHORIZATION	:	This modification is authorized by ECP E98SM05F208A
VERIFICATION STATEMENT	:	This modification has been tested for operational integrity at the sites listed in appendix A.

GENERAL

This modification note provides procedures to upgrade the ASOS operational load by removing and replacing the EPROMs on the ACU/SCA memory board and DCP CPU boards. Some of the major enhancements with the ACU firmware version 2.6 (V2.6) are as follows:

1. Improve the information transfer from ASOS to the Federal Aviation Administration (FAA) tower controllers through the ASOS controller's equipment (ACE) device.
2. Permit processing of the manual and automated runway visual range (RVR) data.
3. Process the single-site thunderstorm reporting sensor data (if configured for an ASOS).
4. Upgrade the uninterruptible power supply (UPS) by-pass circuit control software.
5. Allow software modifications for new high speed modems.
6. Permit software modifications to interface the FAA's new communication system called, automated data acquisition system (ADAS).
7. Process lightning data collected by the automated lightning detection and ranging system (ALDAR).
8. Generate a daily summary message (DSM) and a monthly climatic summary message (MSM).
9. The operator **must** turn on report processing with this version of software.

Appendix B contains a summary of all changes and corrections to the ACU/SCA Memory Firmware V2.6.

PROCEDURE

The following installation instructions are for EPROMs U7, U8, U17, and U21, on the ACU/SCA memory board 1A2A3, or 7A1A1A2A3 and EPROMs U29 and U30 on the DCP CPU board(s) 2A1A2A1 (and 2A1A2A2 if installed).

CAUTION:

Be careful to protect the electronics on the ACU/SCA memory and DCP CPU boards during this procedure. Do not reconfigure any jumpers on the ACU/SCA memory or DCP CPU boards unless instructed.

BEFORE INSTALLATION OF FIRMWARE UPGRADE

1. Call the ASOS Operations and Monitoring Center (AOMC) at 1-800-242-8194 and provide notification on which ASOS you will be installing the ACU firmware V2.6. Confirm with the AOMC that the site-specific data base is available, and upload the current configuration before installing the new firmware.
2. Get approval of the responsible MIC/OIC/Observer before starting installation. Installation of firmware V2.6, may be performed on any day of the month if restrictions in steps 3 and 4 are satisfied.
3. Download the following data sets to the laptop using the direct command mode as outlined in Section 1.3.14.2, of the Site Technical Manual:

<u>Data Set</u>	<u>File Naming Convention</u>
a. 5MIN	FMMDDdd.STA
b. OBS	HMMDDdd.STA
c. SYSLOG	SMMDDdd.STA
d. DAILY	DMMDDdd.STA
e. SHEF	YMMDDdd.STA
f. ARC5MIN*	ZMMDDdd.STA

MM = Month of data

DD = Beginning day of data

dd = End day of data

STA = 3 letter station identification (i.e., Witcha Falls, TX = SPS)

* = 1, 2, or 3 (file will not exist if archive data had not been previously saved).

Forward collected data to the responsible DAPM as soon as possible.

4. **Commissioned Sites Only:** Do not start installation during inclement weather, precipitation, instrument flight rule conditions, or if any of those conditions are expected

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within 3 hours. The responsible MIC/OIC/Observer will define these meteorological conditions.

5. Do not start firmware installation at a time that will conflict with scheduled synoptic observations at 00, 03, 06, 09, 12, 15, 18, and 21Z. Although one and a half hours should be sufficient, allow two hours to complete installation and restart ASOS.
6. Immediately before beginning work at the National Weather Service (NWS) staffed sites, the MIC/OIC/Observer will inform the tower and any other critical users that the ASOS will be turned off for the ACU firmware upgrade. At an unstaffed site, the electronics technician (ET) will inform the tower using controller video displays (CVD) and OID to log off and shut down the displays to avoid problems.
7. Do not begin the installation process until immediately after an hourly observation has been transmitted. At NWS-staffed sites, normal backup observing procedures will be implemented.
8. Sites without a local OID (ie., No. RS232 connected for the primary OID) must attach a terminal to the primary OID port of the ACU 1A9J22, or the Single Cabinet ASOS (SCA) 1A9J19 before proceeding.
9. Use the following steps and upload the current system configuration to the AOMC.

CAUTION:

Be sure and complete step d in the following procedure as soon as possible after step c. DO NOT upload the communications change made in step c to the AOMC.

- a. Log on as **TECH**.
- b. Key to the AOMC page (**REVUE-SITE-VERSN-AOMC**). Command an upload of all data files except VOICE AIRPORT NAME. Wait for all of the lines to change from "UPLOAD REQ" to "COMPLETE." When complete, key **EXIT**.

Note:

DO NOT disable the local OID in step C.

- c. Key to the COMMS page (**REVUE-SITE-CONFIG-COMMS**) and disable all hardware and communication ports. *The system voice function will automatically broadcast a "not available" message.* When complete, key **EXIT**.
- d. Key to the AOMC page (**REVUE-SITE-VERSN-AOMC**) and cancel the automatic update of the RS-232 comm started by the configuration changes made in step c. When complete, key **EXIT**.

ASOS FIRMWARE VERSION 2.6 INSTALLATION

GENERAL

All ASOS application software is contained on the four EPROM integrated circuits (IC) on ACU memory board 1A2A3 or SCA 7A1A1A2A3 memory board. This version of software also requires replacement of the two boot EPROMs on the DCP CPU boards 2A1A2A1 (and 2A1A2A2 if installed). The voice processor board (VPB) must also have version 4.0, or higher EPROMs. (Refer to Modification Note 50 for VPB upgrade instructions.) All of the EPROMs are 32-pin dual in-line package CMOS devices, each providing 512K x 8 bits of storage. Upgrading ASOS software requires replacing effected EPROMs with higher revision level ICs.

The four EPROMs on the ACU memory board or SCA memory board contain both the ACU application program and the DCP application program. The CPU runs the application program directly from the ACU memory board or the SCA memory board. The DCP application program must first be downloaded from the ACU memory board or SCA memory board to random access memory (RAM) storage in the DCP before it can be run by the DCP CPU.

SOFTWARE UPGRADE PROCEDURE

This procedure provides instructions to upgrade ASOS software by removing and replacing four EPROMs on the ACU memory board and two on the DCP CPU printed circuit boards. After new EPROMs are installed, this procedure requires cold starts on both the ACU (or SCA) and associated DCPs.

This procedures requires removal of the battery jumpers to clear all RAM on the memory boards for a complete cold start of both the ACU and DCP. The next step requires receiving a download of site-specific data from the AOMC. After completion of the upgrade procedure, the EPROMs removed from the ACU should be packaged in the appropriate ESD protective material for return to the National Reconditioning Center.

ACU/SCA Memory Board EPROM Installation:

1. If the printer is installed and on-line, place off-line by pressing the **ON-LINE** switch located on the printer front panel. Set the OUTPUT POWER switch on the UPS status panel to the **OFF** position and remove the facility power plug (J41) from the back of the ACU cabinet.

CAUTION:

Damage to equipment may result if facility power and UPS power is not removed prior to removal or installation of the EPROMs.

CAUTION:

To avoid any damage to circuit boards and (ICs), use proper ESD handling procedures, found in EHB-5.

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2. Using a small flat blade screwdriver, loosen the captive screws located at the top and bottom of the blank panel located in the ACU at 1A2A4 or in the SCA, at 7A1A1A2A4. This panel must be removed before removing the memory board in slot 1A2A3 or 7A1A1A2A3, which will avoid damage to the IC on the memory card.
3. Using a small flat-tipped screwdriver, loosen the captive screws located at the top and bottom of the ACU memory board 1A2A3 or SCA memory board 7A1A1A2A3.
4. Press the extractor handles at the top and bottom of the memory board 1A2A3 (or 7A1A1A2A3) in opposite directions to release the board. Remove the board from the rack.
5. Disconnect jumper J22. This action will remove the battery power from the memory board and is necessary to 'cold boot' the system. (Refer to figure 3 for jumper location.)
6. If an IC extraction tool is used to remove the old EPROM chips, skip to step 7. Otherwise; on the underside of the memory board, using a flat blade screwdriver, remove the three screws, flat washers, and handle bushings securing the front panel of the board. Remove the front panel from the board.

CAUTION:

Throughout this procedure, discharge any static electricity from the screwdriver before and during use by touching the tool to the grounded chassis surface. Also, lift IC as evenly as possible. Failure to comply may result in damage to IC.

7. Using the IC extraction tool, remove the U7 EPROM from the front of the board slide. Carefully lift up on U7 to remove it from the socket as evenly as possible. After U7 is removed from the socket, place in a conductive foam or on some other static-free surface. (Refer to Figure 3 for IC locations.)
8. Repeat step 7 for the removal of the following ICs: U8, U17 and U21.
9. Remove the new EPROM ICs, for V2.6, from the protective package and insert them into the memory board sockets in accordance with the following chart. Using the IC insertion tool and ensuring that the EPROMs are installed with pin 1 (as identified by notch in top of IC) oriented toward board connectors P1 and P2, as shown on figure 3, press the EPROMs into their respective sockets.

<u>IC socket</u>	<u>IC part number</u>
U8	62828-45002-1
U17	62828-45003-1
U7	62828-45004-1
U21	62828-45005-1

10. Remove the clock chip and carrier located at U52. Keep the clock chip and carrier together as one assembly. Set the assembly aside in a location safe from physical or ESD damage.
11. Remove the IC located at U32 and install it in location U52.
12. Install the clock chip and carrier assembly removed from location U52 into location U32.
13. If the front panel on the memory board was removed, reinstall the front panel using the three flat washers and screws.
14. After jumper J22, which was disconnected in step 5, has been removed for a minimum of 5 minutes, reinstall it.
15. Hold the ACU memory board by the handles, position the board with the component side facing to the right and carefully slide the board into VME slot 1A2A3 or SCA slot 7A1A1A2A3. Align the board with the rear connector and press into place. Reinstall the ACU 1A2A4 or SCA 7A1A1A2A4 blank panel.
16. Using a small flat blade screwdriver, tighten the captive screws located at the top and bottom of the boards and blank panels.
17. If the unit is an SCA, verify that the CPU EPROMS are version 1.81.
18. Proceed with Modification Note 50. Proceed with Modification Note 54 Class II SSTDR/UPSBC, Modification Note 51 Class I SSTDR, Modification Note 56 SCA Class II SSTDR/UPSBC, or Modification Note 53 SCA Class I SSTDR.
19. Apply facility power to the ACU cabinet and insure the UPS is turned on. If Modification Note 54 is being installed, verify that 115AC is present across pins A and B of XK3 and the K2 led is illuminated.
20. After the power is applied to the ACU, one of the PASS (Green) LEDs on the CPU should illuminate and the PASS LED on the other CPU will remain off. After approximately one minute, the LED that was off should start blinking.
21. If the printer is installed, place the line printer on-line by pressing the **ON-LINE** switch located on the printer front panel. The **ON-LINE** indicator illuminates.
22. With the power applied to the ACU and OID, and after a brief warmup delay, the OID displays 1-minute data. If the display is not being updated, press the HELP key twice to refresh the screen. The NEED SID AND AOMC PHONE message appears at the top of the screen. If this does not occur, return to the REMOVAL procedure, step 1. Follow the steps until the ACU memory board is removed. Ensure the ACU EPROMs are installed correctly. Follow the INSTALLATION procedures to replace the ACU memory board.

23. Return to the OID and perform the following:
- Sign on as **TECH**. *Passwords are reset to the default values (REYNOLDS and TESTER).*
 - Proceed to the external communications page (**REVUE-SITE- CONFIG-EXTRN**). Enter both AOMC phone numbers, 1-800-253-4717 and 1-800-434-1133 into the AOMC PHONE NUMBER field and press the **EXIT** key.
 - Proceed to the site physical page (**REVUE-SITE-PHYS**). Enter the three or four character SID code in the STATION IDENTIFIER field and press the **EXIT** key.
 - The ASOS then calls the AOMC and receives a download of site-specific data.
 - Display the AOMC page (**REVUE-SITE-VERSN-AOMC**). *This will allow you to observe that all files are being downloaded from the AOMC. All status fields should read "COMPLETE" in approximately 10 minutes. Wait for the AOMC downloads to complete. Press the **EXIT** key.*
 - Let the system stabilize for 5 minutes.
 - Sign on as a **TECH**, using the site specific password.
 - Proceed to the software version page (**REVUE-SITE-VERSN-SW**) and verify proper versions for all system software:

Example:

ACU	CPU A	PSOS	1.81
	CPU B	PSOS	1.81
	MEMORY	ACU	2.60

- Press the **EXIT** key.

CAUTION:

Information inadvertently entered on any of the configuration pages, prior to the AOMC download, will cause the configuration fields to be populated with default values automatically.

24. Proceed to the sensor firmware version page (**REVUE-SITE-VERSN-SENSR-CHANG**) and enter the sensor firmware version currently installed:

CEILOMETER	2.46	
VISIBILITY	039	
TEMP/DEW POINT	A92/F91	(for 1088) B91A/F91 (for H083R)
PRESENT WX	3.64	
WIND	4.0	
PRESSURE	N/A	
FREEZING RAIN	2	
LIQUID PRECIP	N/A	
THUNDERSTORM	1.06	

25. Proceed to the site physical page (**REVUE-SITE-PHYS**) and verify the primary DSM XMIT time, Intermed DSM XMIT time, and the MSN XMIT time are blank. This assures that the DSM/MSM and ALDAR are disabled
26. If installing modification 54 at the same time, complete steps 1 through 12 of the “Verification Procedure for the Class II ACU” SSTDR DOM, and UPSBC of modification 54.
27. Proceed with Modification Note 49.
28. Proceed with “DCP EPROM Installation,” if SCA site, proceed with “AFTER INSTALLATION OF FIRMWARE UPGRADE.”

DCP EPROM Installation:

1. If there is more than one DCP at the site, each DCP must receive this modification.

CAUTION:

Damage to equipment may result if power is not removed prior to removal or installation of the EPROMs. Ensure that the OUTPUT POWER switch is set to 0 (OFF) and facility power is removed.

To avoid any damage to circuit boards and IC, use proper ESD handling procedures, found in EHB-5.

2. Set OUTPUT POWER switch on UPS status panel to the 0 (**OFF**) position. The indicator for the OUTPUT status panel extinguishes. (This step is only required on systems with a UPS).
3. Remove the facility AC power from the DCP cabinet by turning off the circuit breakers in the AC Junction Box, or turning off the Facility Disconnect Box.

4. Using a small flat blade screwdriver, loosen captive screws located at the top and bottom of the DCP memory board located in slot 2A1A2A3.
5. Press extractor handles at the top and bottom of the DCP memory board in the opposite directions to release the board. Remove the board from the rack.

Note:

A 'Cold Boot' *MUST* be performed to ensure a proper reset of the memory boards.

6. Disconnect the J34B connector. This will remove battery power from the memory board which is necessary to 'cold boot' the system. Set the memory board and jumper aside in a location safe from physical or ESD damage. (Refer to figure 1 for jumper location.)

Note:

Jumper J34B is installed after EPROM replacement on the CPU boards. This jumper should be removed for a minimum of 5 minutes which will ensure adequate time for the memory circuits to properly discharge.

7. Remove the radio cable(s) from the JK1 connector on the front of the CPU board located in 2A1A2A1 (and 2A1A2A2 if installed).
8. Using a small flat blade screwdriver, loosen the captive screws located at the top and bottom of the DCP CPU board(s) 2A1A2A1 (and 2A1A2A2 if installed).
9. Press extractor handles at the top and bottom of the DCP CPU boards 2A1A2A1 (2A1A2A2 if required) in the opposite directions to release the board. Remove the board from the rack.

CAUTION:

Throughout this procedure, discharge the screwdriver before and during use by touching tool to the grounded chassis surface. Failure to comply may result in damage to the IC.

10. Using an IC extractor, remove the U29 and U30 EPROMs from the DCP CPU printed circuit boards 2A1A2A1 (and 2A1A2A2 if installed). Place the removed ICs in a conductive foam or on some other static-free surface. (Refer to figure 2 for IC locations.)
11. Remove the new EPROM ICs from the protective package and insert them into the DCP CPU board sockets in accordance with the following chart. Using the IC insertion tool and ensuring that the EPROMs are installed with pin 1 (as identified by notch in top of the IC) oriented toward the board connector, press the EPROMs into their respective sockets.

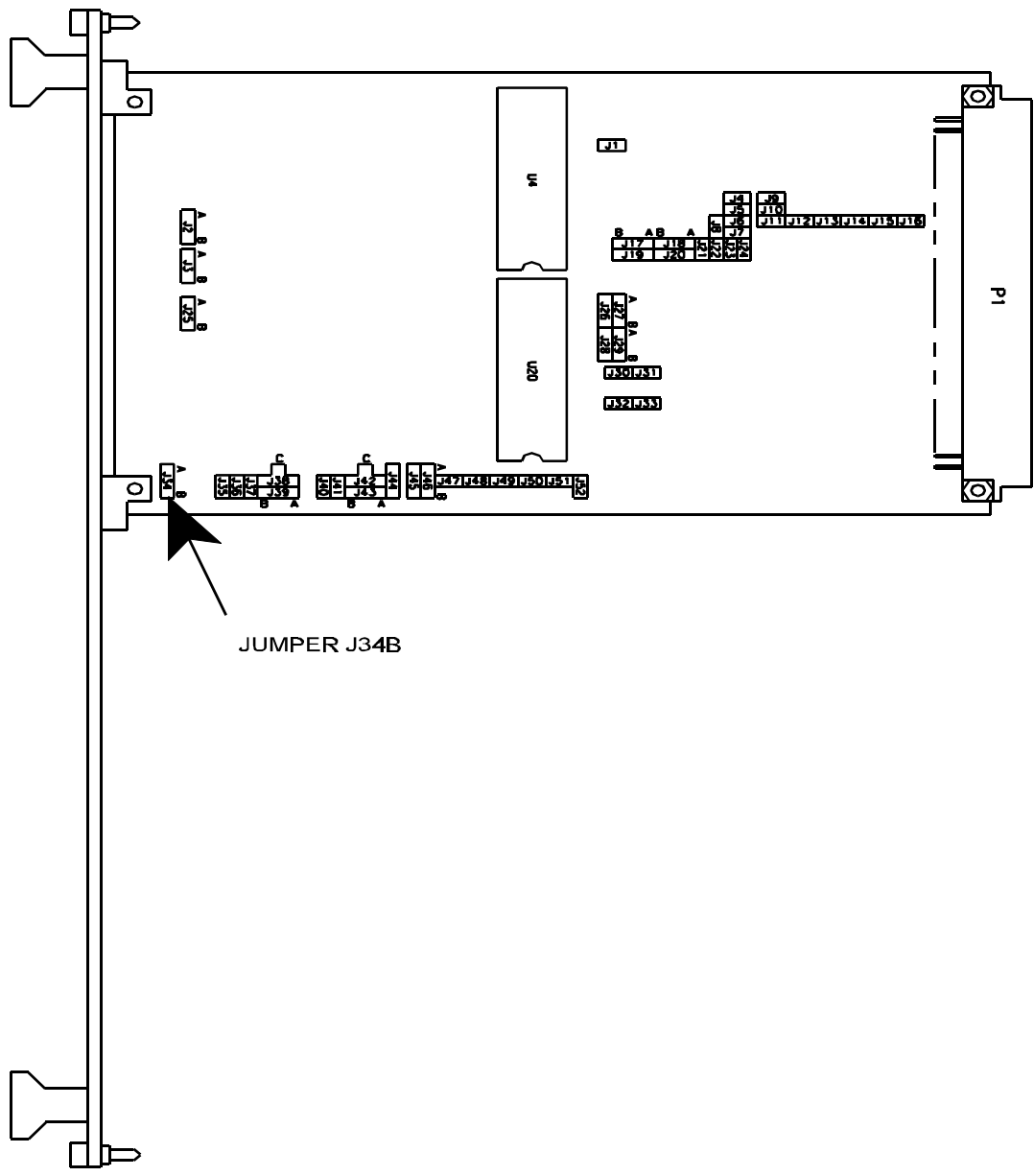
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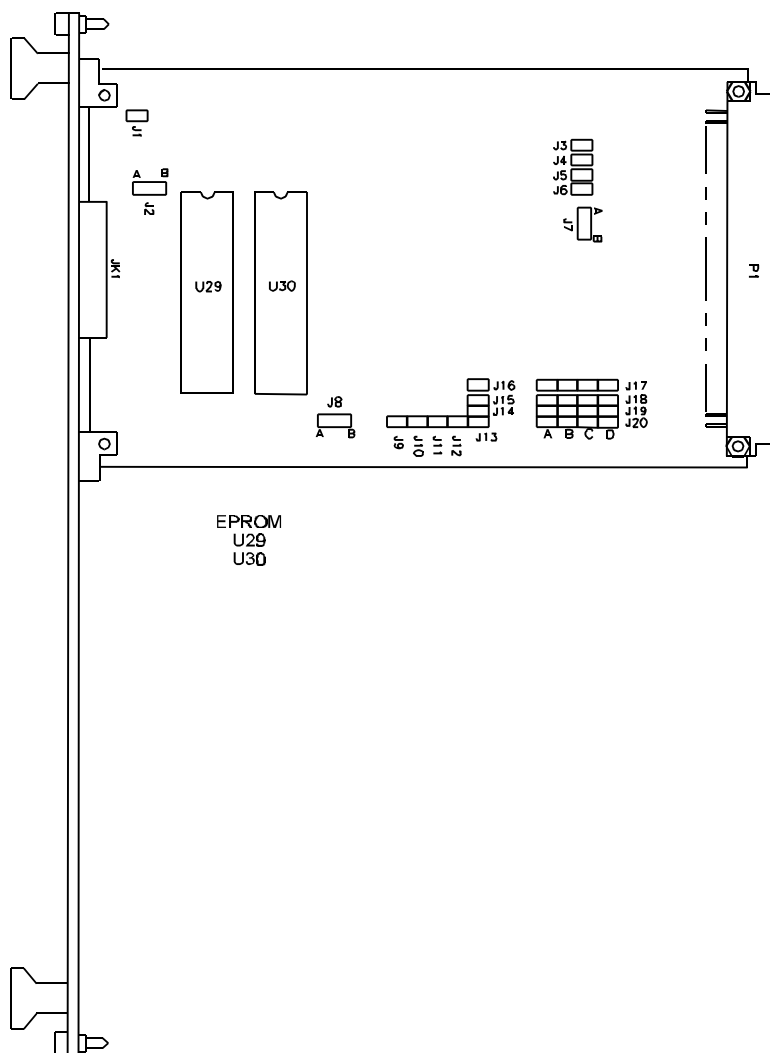
<u>IC socket</u>	<u>IC part number</u>
U29	62828-45018-1 Version 1.90
U30	62828-45019-1 Version 1.90

12. Reinstall jumper J34B on the memory board that was disconnected in step 6.
13. Holding the DCP memory board by the handles, position the board with the component side facing to the right and carefully slide the board into the card rack on its guides. Align the board with the rear connector and press into place.
14. Holding the DCP CPU board by the handles, position the board with the component side facing to the right and carefully slide the board into the card rack on its guides. Align the board with the rear connector and press into place.
15. Using a small flat blade screwdriver, tighten the captive screws located at the top and bottom of both the DCP CPU and memory boards.
16. Connect the radio cables removed in step 7 to the CPU cards at JK1. Observe the marking on cables to ensure the proper connection.
17. Perform Modification Note 52 for Class I DCP, or Modification Note 55 for Class II DCPs at this time. Complete the assembly pre-wiring instructions for either modification. Start at step 3 of the Class I DCP SSTDR, or step 3 of the Class II DCP SSTDR (K1), DOM (K2), and UPSBC (XK3) installation.
18. Apply the facility AC power to the DCP cabinet.
19. Set the OUTPUT POWER switch on the UPS status panel to the 1 (**ON**) position. (This step is only required on systems with a UPS).
20. If installing modification 55 at the same time, verify 115AC across pins A and B of XK3.
21. If there is more than one DCP at the site, perform steps 1 through 20 for each DCP before proceeding to "After Installation of Firmware Upgrade."
22. Proceed with "AFTER INSTALLATION OF FIRMWARE UPGRADE."



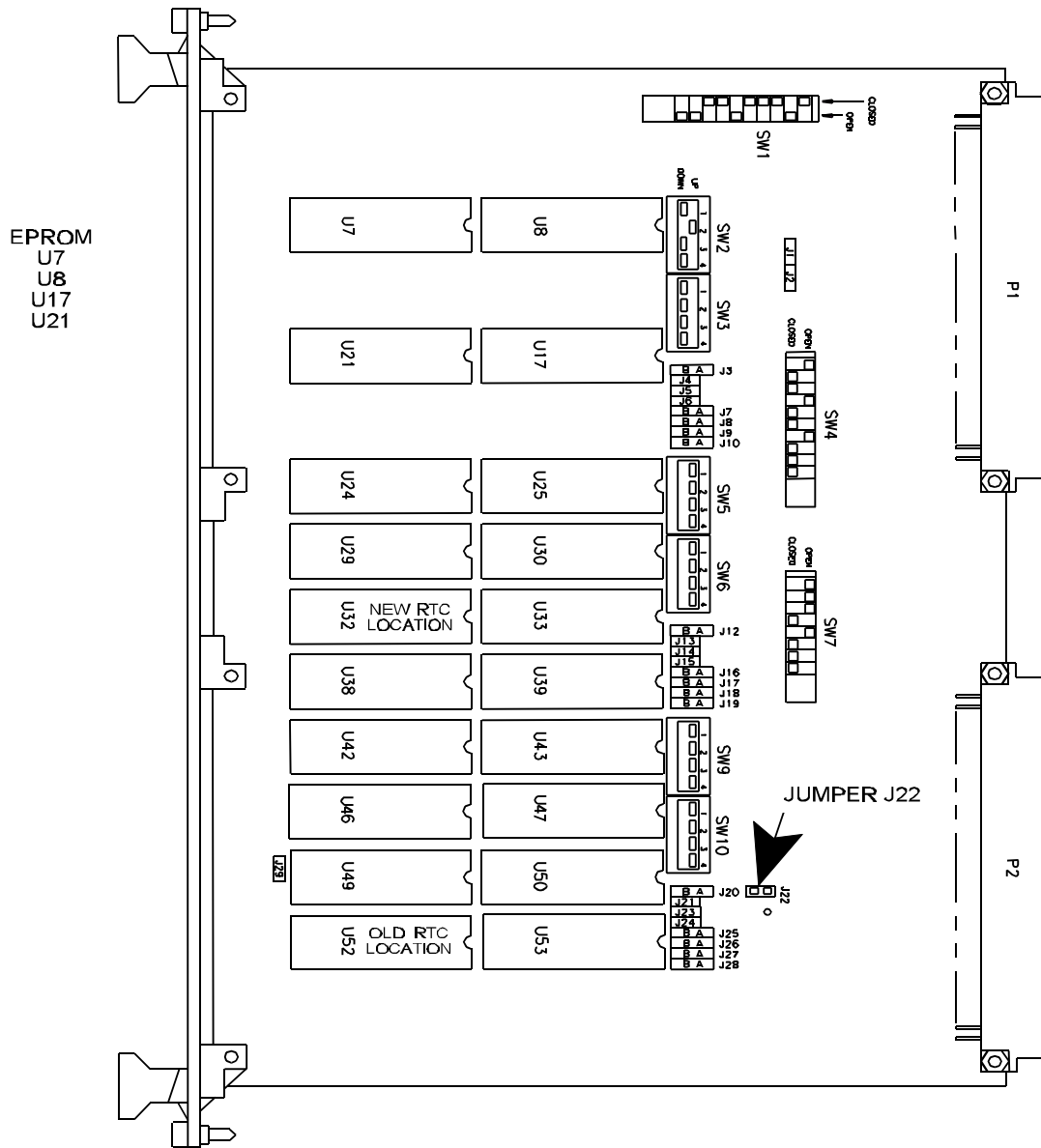
DCP MEMORY BOARD JUMPER LOCATION
(ALL COMPONENTS NOT SHOWN)

FIGURE 1



DCP CPU EPROM LOCATIONS
(ALL COMPONENTS NOT SHOWN)

FIGURE 2



ACU MEMORY BOARD EPROM LOCATIONS
(ALL COMPONENTS NOT SHOWN)

FIGURE 3

AFTER INSTALLATION OF FIRMWARE UPGRADE

1. Return to the OID and perform the following:
 - a. Sign on as **TECH**.
 - b. Download of the DCP application software should occur automatically. If not, download the DCP application software using **MAINT-PROG-DCP Hard Reset**. At the top of the screen, look for "% DOWNLOADED is displayed." Wait for the DCP download to complete. Press the **EXIT** key.
 - c. After DOWNLOAD is complete proceed to the software version page (**REVUE-SITE-VERSN-SW**) and verify the proper versions for all system software: (It may take 5-10 minutes for the information to be returned from the DCP).

Example:

DCP	CPU A	BOOT	1.90
	CPU B	BOOT	1.90
	MEMORY	DCP	2.60

- d. Press the **EXIT** key.
 - e. If installing modification 55 at the same time, complete steps 1 through 9 of the "Verification Procedure of the DCP Class II SSTDR DOM and UPSBC", of modification 55.
2. After the modification has been completed, clear any maintenance flags that occur as a result of the restart.

Note:

THE OPERATOR *MUST* TURN ON REPORT PROCESSING WITH THIS VERSION OF SOFTWARE.

3. Proceed to the report processing control page (**REVUE-SENSR-STAT-PROC**). Do not turn on Report Processing for ALDARS.
4. Proceed to the sensor status page (**REVUE-SENSR-STAT**) and verify the Report Processing is off for thunderstorm sensor sites. Where a thunderstorm sensor is installed at the DCP, turn Report Processing on by keying the PROC and sequencing through the thunderstorm sensor. Key ON, then **EXIT**.
5. Turn on report processing for each sensor. Press **EXIT**.
6. When ASOS is restarted at unstaffed sites, call to inform towers using CVDs and OIDs to turn on their displays. (At staffed sites, the MIC/OIC/Observer will call the tower.)

7. If on-site NWS-staff provides backup while the installation is underway, no special observation is needed when ASOS is restarted.
8. If there is no backup at a site, and a record observation was missed during the installation, a special observation must be taken when ASOS is restarted. The ET should take the following steps at the ASOS keyboard after installation:
 - a. Sign on system as **OBSERVER**;
 - b. Key **GENOB**;
 - c. Key **SPEC**;
 - d. Key **XMIT**;
 - e. Key **SIGN**;
 - f. Type your initials again and Key [RETURN];
 - g. Key [RETURN] twice. This signs the "observer" off the ASOS; and
 - h. Leave ASOS running.

Note:

The observer must sign off before the 5-minute edit time is up.

9. Inform the office staff that ASOS is again operational. If less than 25 minutes remain until the next hourly observation, augmentation of the ceiling may be required. Augmenting several elements may be necessary (or even the entire observation). The chart below indicates how long it takes after a startup for ASOS to report each observation element automatically.

Times Needed for Elements to be Reported Automatically

	<u>Minimum</u>	<u>Maximum</u>
Pressure	60 seconds	
10 minutes		
Precipitation Amount	60 seconds	*
Wind direction	2 minutes	7 minutes
Wind speed	2 minutes	7 minutes
Precipitation Type	2 minutes	*
Temperature	5 minutes	10 minutes
Dew Point	5 minutes	10 minutes
Visibility	10 minutes	15 minutes
Obstruction to Visibility	10 minutes	*
Ceiling	30 minutes	35 minutes

* Maximum time not applicable since phenomena may not be present. Minimum time applies if phenomena are present.

10. Verify the ASOS transmitted an hourly observation. Call the AOMC at 1-800-242-8194 and inform the operator of:
 - a. Your location.
 - b. The installation of firmware version 2.60 has been completed.
 - c. The ASOS is operational.
11. Sign on the system as a technician and enter in the SYSLOG that maintenance has been completed.
 - a. Key the **MAINT** screen.
 - b. Key the **ACT** page.
 - c. Key **FMK** - Enter the Field Mod Kit (FMK) number as follows: **Mod 47**. Press **ENTER**. On the second line of the screen, verify that only Mod 47 is displayed. Complete by entering **Y** in the [Y/N] area if only Mod 47 is displayed.
 - d. Check the SYSLOG and verify the FMK message. Enter a comment in the SYSLOG stating that ACU firmware version 2.60 and DCP firmware version 1.90 has been installed.

Note:

If other modifications are completed in conjunction with this modification note, make appropriate log entries.

12. Before logging off from the OID, key in **SITE - VERSN - AOMC - UP-LD**. This will command an upload of the site configuration files to the AOMC and ensure that both parties have the same set of data files.

Note:

If the site configuration files are not uploaded to the AOMC before the technician leaves the site, the data on old file at AOMC will not match the new site configuration.

13. At an expansion site with an air traffic control tower (ATCT), the ET will contact the ATCT and supply information on the following:
 - a. The ASOS maintenance has been completed.
 - b. The ASOS has been restored to service.
 - c. The ATCT CVDs, OIDs, and TRACON displays need to be turned on.

SHIPPING INSTRUCTIONS

After Modification Note 47 has been completed, package the old EPROMs in an anti-static package and ship to the National Reconditioning Center, attention Roger Helphrey, ASOS repair. Items being returned should include the old EPROMs marked as S100-FMK0249.OLD.

REPORTING MODIFICATION

Target date for completion of this modification is 14 days after the receipt of parts. Report completed modification on an NWS Form A-26, Maintenance Record, appendix B, using the instructions in Engineering Handbook No. 4 (EHB-4), Engineering Management Reporting System (EMRS), part 2, appendix F. Report the modification to the ACU and DCP using the equipment code **AACU** in Block 7. Record a modification number of **47** in Block_17a of the A-26. Appendix C contains an example WS Form A-26, Maintenance Record.

Original Signed

John McNulty
Chief, Engineering Division

Appendix A - Test Sites
Appendix B - Summary
Appendix C - A 26

The Test Sites for Firmware version 2.6 are:

SID	ASOSID	CITY	STATE	AIRPORT
LWX	ST0	Sterling	VA	Engineering Test Facility
LWX	ST1	Sterling	VA	Engineering Test Facility
LWX	ST2	Sterling	VA	Engineering Test Facility
SLVM2	SP1	Silver Spring (Roof)	MD	NWS Headquarters
SLVM2	1S2	Silver Spring (11 th Floor)	MD	NWS Headquarters

SID	Name	Cmssion Status	Staffing		Config	Multiple Sensors	Comms	ZR	TSTM / ALDARS	GTA	ACE	RVR
			NWS	FAA								
CLE	Cleveland, OH	Y	FT	-	2 DCP	M	AFOS	ZR	-	-	-	-
CON	Concord, NH	Y	FT/C	-	1 DCP	-	PACE	ZR	TSTM	GTA	-	-
DCA	National Reagan, VA	Y	-	FT/C	1 DCP	B	PACE	ZR	-	-	ACE	EDIT
DMH	Baltimore, MD	Y	-	-	SCA	-	AFOS	-	-	-	-	-
MRB	Martinsburg, WV	N	-	-	1 DCP	-	ADAS	ZR	ALDARS	GTA	-	-
THV	York, PA	Y	-	-	1DCP	-	ADAS	ZR	-	GTA	-	-
ABQ	Albuquerque, NM	Y	FT	-	1 DCP	-	AFOS	-	-	-	-	-
ALI	Alice, TX	N	-	FT/C	1 DCP	-	ADAS	-	ALDARS	GTA	-	-

SID	Name	Cmssion Status	Staffing		Config	Multiple Sensors	Comms	ZR	TSTM / ALDARS	GTA	ACE	RVR
			NWS	FAA								
COT	Cotulla, TX	N	-	FT/C	1 DCP	-	ADAS		ALDARS	GTA	-	-
CRP	Corpus Christi, TX	Y	FT	-	1 DCP	-	AFOS	-	-	-	-	
CSV	Crossville, TN	N	-	FT/C	1 DCP	-	ADAS	ZR	ALDARS	GTA	-	-
DHT	Dalhart, TX	N	-	FT/C	1 DCP	-	ADAS		ALDARS	GTA	-	-
INK	Wink, TX	N	-	FT/C	1 DCP	-	ADAS	ZR	ALDARS	GTA	-	-
LCH	Lake Charles, LA	Y	FT	-	1 DCP	-	AFOS	-	-	-	-	-
MEM	Memphis, TN	N	-	FT/C	3 DCP	B	ADAS	ZR	ALDARS	-	-	NGRVR
OKC	Oklahoma City, OK	Y	-	FT/C	1 DCP	-	AFOS	ZR	-	-	ACE	NGRVR
PBF	Pine Bluff, AR	N	-	FT/C	1DCP	-	ADAS	ZR	ALDARS	GTA	-	-
SSI	Brunswick, GA	N	-	FT/C	1 DCP	-	ADAS	-	ALDARS	GTA	-	-
TCC	Tucumcari, NM	N	-	FT/C	1 DCP	-	ADAS		ALDARS	GTA	-	-
GRR	Grand Rapids, MI	Y	FT	-	2 DCP	M	AFOS	ZR	-	-	-	-
ICT	Wichita, KS	Y	FT	-	1 DCP	-	AFOS	ZR	-	-	-	-
ISN	Williston, ND	Y	FT	-	1 DCP	-	PACE	ZR	TSTM	GTA	-	-
LBF	North Platte, NE	Y	FT	-	1 DCP	-	AFOS	ZR	-	GTA	-	-

SID	Name	Cmssion Status	Staffing		Config	Multiple Sensors	Comms	ZR	TSTM / ALDARS	GTA	ACE	RVR
			NWS	FAA								
MCW	Mason City, IA	N	-	FT/C	1 DCP	-	ADAS	ZR	ALDARS	GTA	-	-
OFK	Norfolk, NE	Y	FT/C	-	1 DCP	-	PACE	ZR	TSTM	GTA	-	-
ACV	Arcata, CA	N	-	FT/C	1 DCP	-	ADAS	-	ALDARS	GTA	-	-
DAG	Daggett, CA	N	-	PT/C	1 DCP	-	ADAS	-	ALDARS	GTA	-	-
DUG	Douglas Bisbee, AZ	N	-	PT/C	1 DCP	-	NONE	-	ALDARS	-	-	-
ELY	Ely, NV	Y	FT/C	-	1 DCP	-	PACE	-	TSTM	GTA	-	-
HVR	Havre, MT	Y	PT/C	-	1 DCP	-	PACE	ZR	TSTM	GTA	-	-
LAX	Los Angeles, CA	Y	FT/C	-	2 DCP	B	PACE	-	-	-	-	NGRVR
OAK	Oakland, CA	N	-	FT/C	1 DCP	B	ADAS	-	ALDARS		-	
SEA	Seattle, WA	Y	-	FT/C	2 DCP	B	PACE	ZR	-	-	-	NGRVR
SLC	Salt Lake City, UT	Y	FT/C	-	2 DCP	M/B	AFOS	ZR	-	-	-	NGRVR
ADQ	Kodiak, AK	Y	FT	-	1 DCP	-	ADAS	ZR	-	-	-	-
FAI	Fairbanks, AK	Y	FT	-	2 DCP	M	ADAS	ZR	-	-	-	NGRVR
PAQ	Palmer, AK	Y	-	PT	1 DCP	-	GS-200	ZR	-	GTA	-	-
HNL	Honolulu, HI	Y	FT/C	-	2 DCP	B	ADAS	-	-	-	-	EDIT
ITO	Hilo, HI	Y			1 DCP	-	ADAS	-	-	-	-	-

ASOS Software Version 2.60 - Summary of Changes

ASOS ACU software version 2.60 contains all interim software enhancements developed since the fielding of the METAR load, designated v2.40. These include the following software development efforts that have been released to selected sites in **version 2.50**:

- Improve transfer of information from ASOS to ACE
- Permit processing of manual and automated RVR data
 - Implement New Generation RVR interface (if configured)
 - Allow user to edit RVR information on OID if required
- Process single-site lightning sensor data (if configured)
- Permit use of EITHER "PE" or "PL" designator for ice pellets

In addition to the capabilities listed above, the **version 2.60** software will also implement the following changes in logic:

- Add "PENDING" Prompts to top of OID One-minute Screen
 - "HOURLY PENDING" instead of "HOURLY"
 - "SPECIAL PENDING" instead of "SPECIAL"
- Half-hourly Cloud Statistics
 - Total cloud amount statistics provided for NCDC download
- Establish Communications Log
 - Removes all communications-related messages from the SYSLOG
 - Creates a separate communications log (Log z)
- Correct Seasonal Degree Day Computations
 - Heating/Cooling Degree Days now cumulative values to date vs single value
- Revise Processing Timing
 - Ensure agreement of precipitation remarks ("Pxxxx", "6xxxx", "7xxxx")
- Improve Wind Shift Remarks
 - Eliminate false wind shift remarks during gusty conditions
 - Base wind shifts on 10-min average wind direction vs. 2-min average
- Improve Pressure Remarks
 - "PRESRR" and "PRESFR" now reported only while occurring
 - Algorithm improvements provide better definition of pressure trace
- Improve Hygrothermometer Data Quality
 - Data Quality failures now based on 10°F/min rate-of-change vs 6°F/min
 - Cease reporting dewpoint when ambient temperatures are below -30°F

- Add Report Processing Modifications
 - Add brackets ("[xxx]") around data in archive when report processing is off
 - Prompt user when thunderstorm, present wx, and freezing rain data unavailable
 - Prompt user when thunderstorm, present wx, and freezing rain data restored
 - Generate "PNO" remark when liquid precipitation gage data unavailable
- Add Sensor Firmware Screen
 - Allows technician to enter/track sensor firmware version number
- Provide ADAS Summary Screen
 - Shows 24-hour history of ADAS interface activity
 - Available through MAINT function
- Generate DSM and MSM Messages
 - Add screens to accommodate additional climatological info
 - Add capability to generate interim daily summary messages
 - Allow user to disable the generation of messages for transmission
- Amend Max Short Duration Precip logic for Monthly Summary Message
 - Algorithm modified to comply with NCDC processing guidelines
- Software Modifications for High-Speed Modems
- Decrease Wait Time to 10 Seconds for Reply-Req to AFOS
 - User-specified wait time, range = 10 seconds to 2 minutes
- ASOS Archive Requirements for ASOS Long-line Wx Products
 - Require proper annotations of "COR" and "FIBI" in archives
 - Identical treatment, regardless of comms interface used
- Disable 10-Second Delay in Direct Command Mode (DCM) Download
 - Reduces comms costs by eliminating wasted "wait" time
 - Requires slight modification of user DCM procedures
- Modify Present Wx Reporting to Comply with FMH#1 Format
 - Fully implement present weather encoding rules for METAR
- Modify Present Wx and Visibility Reporting to Support Expanded FAA Requirements
 - Expand list of acceptable present weather entries for augmentation
- Change Voice Broadcast to Support New Vis/Present Wx Values
 - Add vocabulary to reflect upgraded visibility and present weather reporting
- ASOS/ADAS ICD Rev E Changes
 - Update format and content of ADAS Fixed-Field Weather Message
- Process lightning network (ALDARS) data (if configured)
 - Ingest, process, and report data supplied by ADAS

- Interim Blowing Snow Algorithm
 - Reduce the number of false rain reports at 32°F and below
- Create EDIT Log
 - Track user-initiated changes to weather parameters
 - Track automated cancellation of SPECIs (reversal of trend)
 - Creates QC tool for representativeness studies
 - Does not include Daily Summary or Monthly Summary Products
- Change Voicing of "+FC" From "Funnel Cloud" to "Tornado"
 - Corrects misinterpretation of METAR encoding rules
- Change Voicing of "Ground Fog" to "Shallow Fog"
 - Updates old SAO terminology to correct METAR terminology
- Separate Report Processing Control for Temperature and Dewpoint
 - Allows user to disable dewpoint sensor, leaving ambient temp operational
- Set Report Processing to OFF When Configuring Sensor
 - Prevents the accidental inclusion of questionable data when first installed
- Deconfigure/Configure Sensor Message in SYSLOG
 - Automatically records the installation or removal of a sensor in log
- UPS Bypass Logic Development
 - UPS Bypass allows AC current to shunt around defective UPS hardware
 - Software upgrade allows user to control bypass function
- Change Ice Pellet Designator
 - Change designator from "PE" to "PL"
- Add Independent Addresses for Daily Summary Message and Monthly Summary Message
 - Allows delivery of DSM and MSM to WFO for review/correction prior to release

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